

# Smart Connected Products: *Taking the First Step*



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The pace at which these broad changes occur is only accelerating. In 2016, ANSYS quoted research that suggests there would be 26 billion personal devices by 2020, generating approximately \$1.9 trillion in global economic value. Today's research suggests that 127 new connected devices go live every second — and the predictions of global economic impact are as high as \$11 trillion. With the advent of 5G, that acceleration will only increase.

Here at ANSYS, we are also accelerating the pace at which our simulation technology evolves, to continue anticipating the new demands of our customers. Two years ago the term digital twin, a concept enabled by smart connected products, was barely in the global lexicon. Today it is becoming ubiquitous. We recently launched the ANSYS Twin Builder solution, which represents one more way our customers can leverage smart connected technology to realize value

**T**wo years ago, we published an issue of *ANSYS Advantage* that focused on the Internet of Things (IoT) and how increased connectivity of products — ranging from personal electronics to highly complex industrial machines — was making the job of the product development engineer even more difficult. Back then, there was significant hype around the IoT, but, with the exception of a few early adopters, little clarity about what connected products would actually mean for businesses both large and small.

Through conversations with industry experts, as well as my personal observations, I have discovered that a lot has changed since then. The dialogue has shifted from “What exactly is the IoT?” to “Given the importance of connected products, how can our business maximize this financial opportunity?”

Not only have numerous companies, of all sizes, launched digitalization initiatives that leverage new product technology, they have also implemented entirely new business models that capitalize on the data being collected by an ever-expanding number of connected devices. Once seen as a byproduct of connectivity, today that data is appreciated for its tremendous strategic and financial value.

by developing physics-based digital twins of their physical operational assets.

Yet, for many of our customers, the question remains: “How can we begin to capitalize on smart connected product technology?” Because every company is unique, this process must

environments. It must perform reliably and in a functionally safe manner in harsh environments, yet maintain a practical form and weight. The embedded code that controls its behavior and displays its outputs must conform to industry standards and best practices. Today, more than

ever, integrated multidisciplinary simulation is required to explore these myriad, interdependent design variables and trade-

offs and arrive at optimal decisions.

As the IoT continues to mature, this edition of *ANSYS Advantage* highlights engineering teams who are making a meaningful difference in their companies by supporting the journey to value-added smart connected products. By developing highly innovative solutions and helping to create entirely new business models, they are defining the future — and determining what we will be talking about in the next few years. 📌

**“How can we begin to capitalize on smart connected product technology?”**

begin by identifying the business case and mapping a clear path to value. The next step on the journey is adding “smart” and “connected” functionality to an existing product, or building these capabilities into new products, in a way that customers see as valuable.

This takes ingenuity. That's why it falls to the engineer to rise to the associated challenges — which are numerous. A smart connected product needs power, and it needs to endure. It needs to connect consistently and often in conflicting electromagnetic